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No. XI.

QUADRUPLE LOCK.

The SILVER VULCAN MEDAL *and* TEN GUINEAS *were this session presented to Mr. J.* DUCE *of Wolverhampton, for his* QUADRUPLE LOCK FOR SAFE CHESTS, *&c. The following communication was received from Mr. Duce on the subject; and the lock has been placed in the Society's repository.*

SIR, Wolverhampton, May 17, 1823.

I WILL thank you to lay before the Society of Arts a lock of my invention. It is intended for the purpose of securing iron safes and chests. With a single turn of the key it throws out four bolts, one at right angles to each side of the lock; and will, therefore, prevent any door to which it is applied from being opened, even if the hinges have been cut away. If to this be added the great difficulty (probably the impossibility) of picking it, the security offered by it is as great as can be effected or desired.

I am, Sir,
&c. &c. &c.
JOSEPH DUCE.

A. Aikin, Esq.
Secretary, &c. &c.

Locks for safes, which throw out three bolts at once, have been made by various persons, but such locks are only single ones, with the modification of having three bolts instead of one. A lock, therefore, of this description offers no more difficulties in the way of picking it than are presented by a single-bolt lock of the same construction.

Mr. Duce's lock, however, is a combination of four distinct single-bolt locks, fixed in the same frame and opened by the same key; the bolts, therefore, are shut or withdrawn in succession, and present the two following advantages. Whatever time and trouble may be required for picking one of the locks must be quadrupled before the whole can be opened; and as the key opens the four locks in succession, the strain on the wards will be much less than in those cases where two or more bolts are moved simultaneously.

Independently of the ingenious manner in which the four locks are combined, there is not much of novelty in the invention. The tumblers are on Chubb's principle, without the detector, and the rest of the lock is on Barron's principle.

Reference to the engraving of Mr. Duce's Lock.—Plate XI.

FIG. 8. *o o* The case, *p p* the first bolt, *q q* the second, *r r* the third, and *s s* the fourth bolt; the upper plate is removed, and the lock rests on the inner casing *t t t t*; *u u u u* an inner plate, *v v v* three tumblers lying on it for the three first bolts; beneath each of these tumblers, and under the plate *u u*, are two more tumblers, making three for each of these bolts; the last bolt *s s* has but one tumbler *w*, placed under the plate *u u*, which is moved by the corners of an intermediate piece *x x*, which turns on the pin *y*, as is shown by dotted lines: the key *z* is represented as having thrown out the first bolt *p*, and beginning to protrude the second *q*; it then acts on the bolt *r*, and lastly on the bolt *s*, moving them to places shown by dotted lines. It withdraws the three first bolts in a reverse order, but finishes with the last *s s*, in either case.

Fig. 9. The key.